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(General - Patent Pending)**

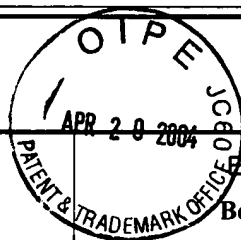
Docket No.  
EN9-95-064BV

In Re Application Of:

Papathomas et al.

Serial No.  
09/471,520

Filing Date  
12/23/99



Examiner  
Berman, S.

Group Art Unit  
1711

Title: **LEAD PROTECTIVE COATING COMPOSITION, PROCESS AND STRUCTURE THEREOF**

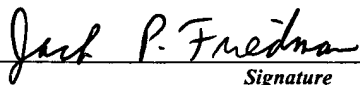
TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith is:

**Reply Brief (12 pages)**

in the above identified application.

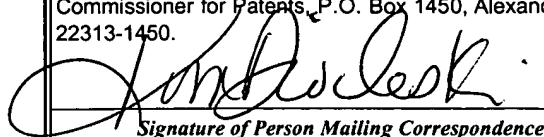
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IFW AF/1711

DOCKET NO. EN9-95-064BV

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants/Appellants: Papathomas et al.	)	Examiner: Berman, S
	)	
Serial No.: 09/471,520	)	Art Unit: 1711
	)	
Filed: 12/23/99	)	

For: **LEAD PROTECTIVE COATING COMPOSITION, PROCESS AND STRUCTURE THEREOF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF OF APPELLANTS**

This Reply Brief addresses issues raised in the Examiner's Answer mailed March 15, 2004.

**REJECTIONS WITHDRAWN**

The Examiner's Answer withdrew the rejections of claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Ayano et al (4,383,903) in view of McCormick et al (5,215,860) and claims 13-15 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ayano et al (4,383,903) in view of McCormick et al (5,215,860) further in view of Christie et al. or Swei (5,182,173).

The Examiner's Answer stated that Issues 2 and 4 as set forth in Appellants' Appeal Brief remain.

## Issue 2

### CLAIMS 1, 6-8, 13, 16 AND 17 UNDER 35 U.S.C. §103(A) ARE NOT UNPATENTABLE OVER GAKU ET AL. (4,533,727) IN VIEW OF MCCORMICK ET AL. (5,215,860) AND SHIMP (4,709,008).

The Examiner rejected claims 1, 6-8, 13, 16 and 17 under 35 U.S.C. §103(a) as allegedly unpatentable over Gaku et al. (4,533,727) in view of McCormick et al. (5,215,860) and Shimp (4,709,008).

#### Claims 1, 7, and 8

Appellants contend that claims 1, 7, and 8 are not unpatentable over Gaku in view of McCormick and Shimp, because Gaku in view of McCormick and Shimp does not teach or suggest the feature “a filler for controlling thermal expansion of said composition” in claims 1 and 8, and a similar feature in claim 7. In the office action rejection, the Examiner alleges that Gaku teaches that “[f]illers, such as silica, and reinforcing agents may be added”. In “Response to Argument”, the Examiner’s Answer argues:

“It is the examiner's position that the recitation of intended purposes of the filler fails to distinguish the compositions instantly claimed from those disclosed in the prior art of record. Although **these properties are not explicitly discussed by Gaku et al**, Gaku et al teach adding fillers corresponding to the specific fillers disclosed by appellant as being useful fillers "for controlling thermal expansion of said composition and for assisting in reinforcing said bond" in the disclosed cyanate ester compositions (see page 12, line 32 to page 13, line 3, page 10, lines 1-7 and pages 24-25). Thus, the disclosed fillers would be expected to provide the same functions in the compositions as are set forth in the instant claims. Gaku specification or any evidence of the criticality of using the disclosed amounts "for controlling thermal expansion of said composition and for assisting in reinforcing said bond". Appellant's argument that the examiner has not established a *prima facie* case of obviousness with respect to recitation of the intended purpose of the filler is not persuasive because the rejection set forth in the Final Office Action clearly points out the disclosed use of fillers and reinforcing agents in the prior art compositions”.

Appellant has argued previously that the prior art does not teach compositions "for reinforcing a bond". This argument is not persuasive for the following reasons. The instant claims are drawn to a composition comprising a filler and the phrase "for reinforcing a bond" merely sets forth an intended purpose of the filler in the composition. Since the prior art compositions comprise the same components as set forth in the instant claims the prior art compositions would also be expected to be useful for reinforcing a bond, in the absence of evidence to the contrary. With respect to process for reinforcing a bond set forth in claim 7, the cited prior art teaches a process comprising providing the composition set forth in the claim.. The recitation of the future intended purpose "for reinforcing a bond" is not considered to be sufficient to distinguish the instantly claimed process steps from the method of providing a composition taught in the prior art."

In applying the preceding argument in the Examiner's Answer to claims 1, 7, and 8, Appellants contend that Gaku does not explicitly disclose "a filler for controlling thermal expansion of said composition", which the Examiner has acknowledged as quoted *supra*. Instead, the Examiner is arguing that Gaku teaches the same fillers as is claimed by Appellant, so that "the disclosed fillers [by Gaku] would be expected to provide the same functions in the compositions as are set forth in the instant claims". In response, Appellants contend that in order for a filler to control the thermal expansion of the composition, the filler must exist in sufficient amount within the composition.

For example, it is fundamental physics (and thus known in the art) that the thermal expansion of the composition depends on the coefficient of thermal expansion of all materials in the composition and on the relative amounts (e.g., weight percent, molar concentration, etc.) of each material in the composition. Thus, if the relative amount of filler in the composition is too small, the filler cannot **control** the thermal expansion of the composition, since the influence of the filler on the thermal expansion of the composition decreases as the amount of filler in the composition decreases. It is a fact that Gaku does not teach or suggest that Gaku's composition has a sufficient amount of filler to **control** the thermal expansion of the composition. Moreover,

Gaku discloses no information at all as to the amount of the filler within the composition.

Additionally, Gaku discloses that “a variety of the additives and reinforcing agents and fillers can be added to the curable resin (A) as long as they do not impair the nature of the curable resin (A) or the cured product” (see Gaku, col. 8, lines 23-26). Applicants contend that if the filler were present in sufficient amount to control the thermal expansion of the curable resin (A) or the cured product, then the filler is in fact significantly changing the nature of the curable resin (A) the cured product, and the filler therefore may be impairing the nature of the curable resin (A) or the cured product, which is forbidden by Gaku.

To further illustrate the point that an effective amount of the filler must exist in the composition, Appellants’ specification discloses rather large amounts of filler in the composition. See Appellants’ specification, page 24, lines 29-32 (“[t]he compositions of the present invention contain ... about 40% to about 75% by weight and preferably about 50% to about 60% by weight of the filler”). If such large amounts of filler were present in Gaku’s composition, the filler would most probably impair the nature of the curable resin (A) or the cured product in Gaku, which is forbidden by Gaku.

Appellants note that claim 7 explicitly claims: “adding to the cyanate ester substance **an effective amount** of a filler for controlling thermal expansion of said composition and for assisting in reinforcing said bond” (emphasis added). The phrase “an effective amount” of filler emphasizes that the filler can control thermal expansion of said composition only if an effective amount of the filler is present in the composition. Gaku most certainly does not disclose said “effective amount” of filler as explicitly required by claim 7. While the phrase “an effective amount” does not explicitly appear in claims 1 and 8, an effective amount of a filler for

controlling thermal expansion of the composition is an inherent limitation in claims 1 and 8, based on the arguments presented *supra*.

Based on the preceding arguments, Appellants contend that there does not exist sufficient evidence in Gaku's disclosure to justify the Examiner's contention that Gaku teaches or suggest "a filler for controlling thermal expansion of said composition" even if the fillers disclosed by Gaku are the same fillers as are claimed by Appellants.

Additionally, the final office action mailed 02/21/2003 does not even allege that Gaku teaches or suggest that the composition includes a filler capable of control the thermal expansion of the composition. Indeed, the final office action mailed 02/21/2003 is totally silent as to the effect of the filler on thermal expansion of the composition. Thus, the Examiner's argument in the Examiner's Answer that "the disclosed fillers would be expected to provide the same functions in the compositions as are set forth in the instant claims" is a new ground of rejection which cannot be used in the present appeal. Accordingly, Appellants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the feature in claims 1, 7, and 8 of "a filler for controlling thermal expansion of said composition".

In addition, Gaku in view of McCormick and Shimp does not teach or suggest the feature "wherein said metal cation in the organometallic complex is selected from the group consisting of elements of Periodic Groups IVB, VB, VIB, VIIB, and VIIIB" in claims 1, 7, and 8. The Examiner does not even allege that Gaku teaches or suggest the preceding feature of claims 1, 7, and 8 (i.e., the metal cation being selected from Periodic Groups IVB, VB, VIB, VIIB, and VIIIB). The final office action mailed 02/21/2003 is totally silent as to the preceding feature of

claims 1, 7, and 8. Because the Examiner did not even address the preceding feature of claims 1, 7, and 8, the rejection of claims 1, 7, and 8 is improper. Accordingly, Appellants respectfully maintain that the Examiner not established a *prima facie* case of obviousness with respect to the preceding feature in claims 1, 7, and 8.

In “Response to Argument”, the Examiner’s Answer states: “Appellant argues that Gaku et al and McCormick et al do not teach the metal cation in the organometallic complex salt set forth in the instant claims. This argument is no persuasive because McCormick et al clearly teach organometallic complex salts wherein the metal is selected from Groups IVB,VIB,VIIB or VIIIB”. In response, Appellants maintain that the preceding argument by the Examiner was not presented in the final office action under appeal and therefore constitutes a new ground of rejection which cannot be used in the instant appeal.

Based on the preceding arguments, Appellants respectfully maintain that claims 1, 7, and 8 are not unpatentable over Gaku in view of McCormick and Shimp, and that claims 1, 7, and 8 are in condition for allowance.

#### Claim 6

Gaku in view of McCormick and Shimp does not teach or suggest the feature “wherein said cyanate ester substance is solvent free”. In the final office action under appeal, the Examiner does not even allege that Gaku in view of McCormick and Shimp teaches or suggest the preceding feature of claim 6. The final office action mailed 02/21/2003 is totally silent as to the preceding feature of claim 6. Because the Examiner did not even address the preceding

feature of claim 6, the rejection of claim 6 is improper. Accordingly, Appellants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claim 6.

The “Response to Argument” in the Examiner’s Answer states: “With respect to claim 6, which recites a solvent-free composition, Gaku et al disclose composition that do not contain organic solvents. See the Examples.” In response, Appellants maintain that there is no disclosure in any of Gaku’s Examples of a solvent-free cyanate ester substance, as required by claim 6. Moreover, Appellants maintain that the preceding argument by the Examiner was not presented in the final office action under appeal and therefore constitutes a new ground of rejection in the instant appeal which cannot be used in the instant appeal.

#### Claim 13

Gaku in view of McCormick and Shimp does not teach or suggest the feature “further comprising a surface treating agent selected from the group consisting of vinyltrimethoxysilane, vinyltriethoxysilane, N(2-aminoethyl)3-aminopropyl methyldimethoxysilane, 3-aminopropylethoxysilane, 3- glycidoxypropyl trimethoxysilane, 3-glycidoxypropylmethyl dimethoxysilane and combinations thereof”.

In addition, Appellants maintain that in the final office action under appeal, the Examiner does not even allege that Gaku in view of McCormick and Shimp teaches or suggest the preceding feature of claim 13. The final office action mailed 02/21/2003 is totally silent as to the preceding feature of claim 13. Because the Examiner did not even address the preceding feature of claim 13 with respect to the rejection over Gaku in view of McCormick and Shimp, the



rejection of claim 13 over Gaku in view of McCormick and Shimp is improper.

#### **Issue 4**

**CLAIMS 13-15 AND 18-20 UNDER 35 U.S.C. §103(A) ARE NOT UNPATENTABLE OVER GAKU ET AL. (4,533,727) IN VIEW OF MCCORMICK ET AL. (5,215,860) AND SHIMP (4,709,008), AND FURTHER IN VIEW OF CHRISTIE ET AL. (5,250,848) OR SWEI (5,182,173).**

The Examiner rejected claims 13-15 and 18-20 under 35 U.S.C. §103(a) as allegedly “being unpatentable over Gaku et al. (4,533,727) in view of McCormick et al. (5,215,860) and Shimp (4,709,008), as applied to claims 1, 7 and 8 above, and further in view of Christie et al. (5,250,848) or Swei (5,182,173)”.

#### **Claims 13, 14, and 18**

Gaku in view of McCormick and further in view of Christie or Swei does not teach or suggest the feature in claims 13, 14, and 18: “further comprising a surface treating agent selected from the group consisting of vinyltrimethoxysilane, vinyltriethoxysilane, N(2-aminoethyl)3-aminopropyl methyldimethoxysilane, 3-aminopropylethoxysilane, 3-glycidoxypropyl trimethoxysilane, 3-glycidoxypropylmethyl dimethoxysilane and combinations thereof”.

The Examiner’s Answer argues that “Gaku et al do not mention adding surface treating agents.... Christie et al teach analogous compositions comprising epoxides and/or curable cyanate esters, reactive modifier and a filler that is optionally treated with a coupling agent. See column 5, lines 3-28. It would further have been obvious to one skilled in the art to employ a filler such

as the optionally surface treated filler in analogous compositions taught by Christie et al as the filler in the compositions taught by Gaku et al, thus providing both instantly claimed filler and surface treating agent. Gaku et al provide motivation by teaching addition of filler and coupling agents.”

In response, Appellants contend that the preceding quote in the Examiner’s Answer is an admission that Gaku does not disclose any of the surface treating agents claimed in the preceding feature of claims 13-14 and 18. Moreover, Appellants contend that Christie does not anywhere disclose any of the surface treating agents claimed in the preceding feature of claims 13-14 and 18.

Also in response to the preceding argument by the Examiner’s Answer, Appellants contend that the Examiner has lumped the filler and the surface treating agent into one entity, namely a surface treated filler, which does not satisfy the requirements of claims 13-14 and 18. In particular, the filler and the surface treating agent are independent elements of claims 13-14 and 18.

Additionally in response to the preceding argument by the Examiner’s Answer, Appellants contend that the Examiner has not provided a persuasive argument for modifying Gaku with a surface treating agent allegedly taught by Christie. In particular, the Examiner has not provided a reason why one of ordinary skill in the art would be motivated to add a surface treating agent to the invention of Gaku.

The Examiner’s Answer presents a new grounds of rejection involving Swei which cannot be used in the instant appeal. The only argument involving Swei in the final office action under appeal is: “It would further have been obvious to one skilled in the art to employ the

composite filler material comprising a surface treated core taught by Swei as the filler in the compositions. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of producing a highly filled polymeric matrix material having improved ductility and toughness, as taught by Swei.” The preceding argument in the final office action under appeal does not address the aforementioned feature of claims 13-14 and 18. In addition, the preceding argument for modifying Gaku in view of McCormick in the final office action is not persuasive, since the Examiner has not provided evidence supporting the Examiner’s allegation that adding a surface treating agent as taught by Swei would add improved ductility and toughness to the composition taught by Gaku in view of McCormick.

Based on the preceding arguments, Appellants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claim 13-14 and 18.

#### Claim 15

Gaku in view of McCormick does not teach or suggest the feature “wherein an amount of a surface treating agent includes from about 3 to about 15 parts based on 100 parts of the resin”. The Examiner’s Answer (as well as the final office action mailed 02/21/2003) does not even allege that Gaku in view of McCormick and further in view of Christie or Swei teaches or suggests the preceding feature of claim 15. Because the Examiner did not even address the preceding feature of claim 15, the rejection of claim 15 is improper. Accordingly, Appellants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claim 15.

### Claims 19 and 20

Gaku in view of McCormick does not teach or suggest the feature “wherein said filler includes a fused or amorphous silica filler having a particle size from 0.5 to about 31 microns”.

The Examiner’s Answer alleges: “With respect to claims 19 and 20, It would have been obvious to one skilled in the art at the time of the invention to employ a filler having a particle size less than 31 microns, and substantially free of alpha particle emissions, as taught by Christie et al, in the compositions taught by Gaku et al in combination with McCormick et al and Shimp. Christie et al provide motivation to employ a filler having a particle size less than 31 microns, and substantially free of alpha particle emissions so that the compositions will readily flow into gaps between a chip and substrate carrier and to avoid generation of electron/hole pairs.”

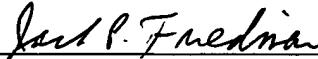
In response to the preceding argument in the Examiner’s Answer, Appellants contend that the Examiner has not provided a persuasive argument for modifying Gaku with particle sizes of 0.5 to about 0.31 microns as allegedly taught by Christie. The Examiner’s argument *supra* relates specifically to the compositions being able to readily flow into gaps between a chip and substrate carrier. Accordingly, the Examiner’s argument relating to the compositions being able to readily flow into gaps between a chip and substrate carrier has no relevance to Gaku, since Gaku does not even mention a chip or a substrate carrier.

Based on the preceding arguments, Appellants respectfully maintain that the Examiner has not established a *prima facie* case of obviousness with respect to the preceding feature in claims 19 and 20.

## SUMMARY

In summary, Appellants respectfully request reversal of the February 21, 2003 rejection of claims 1, 6-8, and 13-20.

Respectfully submitted,



\_\_\_\_\_  
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Dated: 04/26/2004

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